



# Coordinated Observations within EuroPlanet-NA1 and their future

M. Scherf (1), F. Topf (1), H. O. Rucker (1), S. Miller (2), N. Achilleos (2), and R. Stöckler (1)

(1) Space Research Institute, Austrian Academy of Sciences, A-8042 Graz, Austria (manuel.scherf@oeaw.ac.at / Fax: +43-316-4120-690), (2) University College London, London WC1E 6BT, UK

## Abstract

The EuroPlanet-NA1 Observational Infrastructure Networking focuses on maximizing the synergies between the two key elements of Europe's infrastructure in Planetary Science: Ground-based telescopes and space missions (<http://europlanet-na1-oeaw.ac.at>).

This NA will ensure that there is a permanent and sustainable framework for the pooling of joint resources and coordinating of activities between them. The major goals of this working package are the organization of workshops within its key areas and the development of an interactive matrix of ground- and space-based facilities. This paper will summarize the activities, emphasize the necessity of the matrix and show a successful example of its usage and sustainability by means of coordinated observations of exoplanets by amateurs and professionals.

## 1. Introduction

Besides of organizing Workshops in the fields of Planetary and Space Sciences the main goal of NA1 is to provide an interactive matrix of ground-based and space-based observatories for identifying and fostering coordinated observations (so-called NA1-Matrix). The target groups for this online-tool are firstly professionals who are seeking for support of ground-based facilities to their space-based observations and secondly amateurs who are willing to support professional research programs. One successful user-story was identified during the test of the first prototype at the beginning of 2011: NA1 organized the workshop "Coordinated Observations of Exoplanets from Ground and Space" in Graz to bring professional and amateur astronomers together to organize coordinated observations which started in May 2011

## 2. NA1 Workshops

Task 1 of the Networking Activity 1 is dedicated to the organization of workshops in the fields of the key areas of NA1: "Planetary Aurorae, Planetary Radio Emissions, Planetary Space Weather", "Small Solar System Objects", and "Airless Bodies in the Solar System". In addition to that, other workshops with focus on Exoplanetary Research, Planetary Geodesy and Ephemerides and Venus Atmosphere were organized. An overview of some of the most important recent workshops are given below.

### 2.1. 7<sup>th</sup> International Workshop on Planetary, Solar and Heliospheric Radio Emissions (PREVII)

The aim of this workshop was to discuss the non-thermal radio emissions from the radio planets Earth, Jupiter, and Saturn, and from the Sun, the heliosphere, and potentially from extrasolar planets. 80 participants from 14 countries, including Russia, Japan and the United States, made the 7th International Workshop on Planetary, Solar and Heliospheric Radio Emissions to one of the most successful events under Europlanet FP7, culminating in a Proceedings Book published in 2011. Further information on the workshop can be found under <http://pre7.oeaw.ac.at>.

### 2.2. 2<sup>nd</sup> Europlanet Workshop on Exoplanets: Coordinated Observations from Ground and Space

The Meeting brought together 13 participants from 7 countries - interested professional amateur astronomers, and professional scientists working in the exoplanet field. The aim of the workshop was to discuss and prepare a coordinated observation campaign for follow-up observations of exoplanets (e.g. CoRoT planets). These observations already started in May 2011. Further coordinated campaigns discussed and

prepared at the workshop are combined optical- and radio-observations of flare stars - starting in early summer, and general single observations (e.g.  $\epsilon$  Eridani).

### 3. Matrix of ground- and space-based Observatories

The goal of this task, led by IWF/OEAW, and supported by UCL, is to provide the user community with interactive links to ground-based instrumentation that is available to European planetary scientists and which has the capability of supporting and complementing space missions. This task does not limit itself just to the major observatories, but also includes medium- and small-size telescopes and instruments that can fulfill niche requirements for the community (<http://europlanet-na1.oeaw.ac.at/matrix/>).



Figure 1: Very Large Telescope, European Southern Observatory, Paranal, Chile

### 4. User Stories and Sustainability

In preparation to the Workshop on Exoplanets (see Section 2.2) the NA1-Matrix was used to find interested amateurs in the field of Exoplanetary Research. This marked the first successful attempt to make use of the information stored in the Database and to integrate amateur astronomers in professional research campaigns. Additional to the preparation of coordinated observation campaigns it was decided to develop a TWiki-based webplatform to facilitate the coordination between amateurs and professionals. The platform went online in February, and it is planned to subutilize and extend the platform step by step to provide a useful coordination tool for ambitious amateurs involved in the campaigns and workshops of Europlanet NA1.

Especially for the NA1 activities the team of Graz has developed a timeline for implementing and testing the self-sustainability of the provided services. At first it has to be assured, that the NA1-Matrix will be properly integrated in the EuroPlaNet-IDIS framework. Secondly one has to take care that the community build up around the workshops and the Matrix of NA1 will be able to support continuation of the provided services. Due to the increasing participation of amateurs in observations a communication network is build up to motivate amateurs to feed into the Matrix and to participate in observation campaigns.

### 5. Summary and Conclusions

The main goal of this paper is to demonstrate the available services for coordinated observations and to advertise the need for the European scientific community, both professionals and amateurs. In addition to that it is aimed to motivate necessary discussions on how the vision and goals of the Observational Infrastructure Networking Activity can sustain after the lifetime of EuroPlaNet-FP7 by the end of 2012.

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